Patent claims

1. A rotor, generating lift, at least comprising two rotor blades and a generally vertical rotor shaft having a central axis, each rotor blade extending outwards from the rotor shaft, ending in a tip, the rotor having a rotating plane defined by a path that each tip of the rotor blades follows when the rotor rotates, wherein

the rotating plane is tiltable in any direction with respect to a reference plane perpendicular to the rotor shaft axis,

at least a part of one or more of the rotor blades has a pitch angle generally fixed relative to said reference plane,

at least a part of one or more of the rotor blades has a pitch angle generally fixed relative to the rotating plane.

2. A rotor according to claim 1, wherein the part of the rotor blades having a pitch angle generally fixed relative to the rotating plane is the part of the blade in the region of the tip, and wherein the part of the blades having a pitch angle generally fixed relative to said reference plane is the inner part of the blade.

3. A rotor according to claim 2, wherein at least one of the rotor blades are made of a flexible material enabling said rotor blade to twist in a longitudinal direction.

4. A rotor according to claim 3, wherein a first set of rotor blades are connected to the rotor shaft by a first flexible or pivoting hinge with a hinge axis generally perpendicular to both the rotor blades and the rotor shaft, and a second set of rotor blades arranged perpendicular to the first set and connected to the rotor shaft by a second flexible or pivoting hinge with a hinge axis generally perpendicular to both the second set of rotor blades and the rotor shaft, and where at least the inner part of all the rotor blades have a pitch angle that remains fixed relative to said reference plane when the

rotor is tilted up and down or sideways, and wherein the rotor blades at their tip are connected to a ring encircling the rotor.

5. A rotor according to claim 4, wherein the rotor blades are inclined upward with respect to said reference plane, giving the rotor a conical geometry.

6. A rotor according to claim 1, wherein at least one of the rotor blades is comprised of two or more elements, flexible or hinged connected to each other and where at least one element of said rotor blade having a pitch angle generally fixed relative to said reference plane and at least one other element of said rotor blade having a pitch angle generally fixed relative to the rotating plane.

7. A method for passively stabilizing an aircraft in hover, the aircraft employing at least one rotor, generating lift, said rotor comprising at least two rotor blades and a generally vertical rotor shaft having a central axis, each rotor blade extending outwards from the rotor shaft, ending in a tip, the rotor having a rotating plane defined by a path that each tip of said rotor blades follows when the rotor rotates, wherein the method comprises the steps of:

adapting the rotor such that the rotating plane is tiltable in any direction with respect to a reference plane perpendicular to the rotor shaft axis, and

increasing the lift on the outer part of at least one of the rotor blades in response to the tilting of the rotating plane caused by horizontal movement of the aircraft, and

reducing the lift on the inner part of at least one of the rotor blades in response to the tilting of the rotating plane caused by horizontal movement of the aircraft, thereby gradually tilting the rotor back to a horizontal position as the aircraft slows down.

8. An aircraft passively stable in hover, said aircraft comprising at least one rotor according to claim 1-6.

9. An aircraft according to claim 8 further comprising a means adapted to enable controlled tilting of the aircraft.

10. The aircraft according to claim 9 wherein the means for tilting the aircraft is a means for generating a controllable vertical thrust vector connected to said aircraft at a horizontal distance from said rotor.

11. The aircraft according to claim 9, wherein the means for tilting the aircraft comprises having a center of gravity initially placed below the rotor wherein a weight is controllably moved in a generally horizontal direction, in order to shift the center of gravity with respect to the rotor, to enable controlled tilting of the aircraft.

12. The aircraft according to claim 9, comprising two rotors, placed one above the other, said two rotors rotating in opposite directions, creating a coaxial, counter-rotating rotor assembly, wherein the rotational speed of said two rotors can be controllably changed relative to each other, to provide yaw control.

13. The aircraft according to claim 9, comprising at least one means adapted for generating a thrust vector, transversally connected to said aircraft at a horizontal distance from the rotor, to provide yaw control.

14. An aircraft according to any of claims 8-13, wherein the aircraft is a passively stable flying toy, either as a remotely controlled toy helicopter or as any other kind of hovering toy aircraft.